Cisco 7200 Series Routers

Product Overview

The Cisco 7200 Series Routers deliver exceptional performance/price, modularity, and scalability in a compact form factor with a wide range of deployment options. With processing speeds up to 1 million packets per second, port adapters ranging from NxDS0 to OC-12, and an unparalleled number of high-touch IP services, the Cisco 7200 is the ideal WAN edge device for enterprises and service providers deploying any of the following solutions:

- WAN Edge—Award-winning quality-of-service (QoS) feature performance
- Broadband Aggregation—Up to 16,000 Point-to-Point Protocol (PPP) sessions per chassis
- Multiprotocol Label Switching provider edge (MPLS PE)—Solutions for provider edge deployment
- Voice/Video/Data integration—Time-division multiplexer (TDM)-enabled VXR chassis and voice port adapters
- IP Security virtual private networking (IPSec VPN)—Scalable to 5,000 tunnels per chassis
- High-end Customer Premise Equipment (CPE)

The Cisco 7200 addresses these solution requirements by integrating functions previously performed by separate devices into a single platform. Through this integration, the Cisco 7200 provides a single, cost-effective platform that supports:

- High-density LAN and WAN interfaces
- Broadband Subscriber services aggregation—including PPP, RFC1483 termination and Layer 2 Tunneling Protocol (L2TP) tunneling
- Digital T1/E1 TDM trunk termination for voice, video and data.
- High-density multichannel T3/E3 and T1/E1 with integrated channel service unit/data service unit (CSU/DSU)
- ATM, Packet over SONET (POS) and Dynamic Packet Transport (DPT) connectivity
- Direct ATM Circuit Emulation Standard (CES) connectivity for voice, video, and data
- Direct IBM mainframe channel connectivity
- Light-density Layer 2 Ethernet switching

Key Features and Benefits

Table 17-82: Key Features and Benefits of the Cisco 7200 Series Router

Feature	Benefit
Up to 1 Mpps processing capability	Provides high-performance routing and processing performance
Maximum connectivity options	Meets a variety of topology requirements with the widest range of port densities and interface options
Breadth of services	Supports QoS, security, MPLS, broadband, multiservice, and management features for next-generation networks
Investment protection	Low initial investment with upgrade and redeployment capability

Specifications

Hardware

Table 17-83: Technical Specifications for Cisco 7200 Series

Description		Cisco 7204VXR	Cisco 7204VXR
Chassis	Chassis/Rack	Up to 16 per 7 foot rack	Same as Cisco 7204VXR
	I/O Card slots	1	Same as Cisco 7204VXR
	Port Adapter Slots	4	6
	Midplane	2 independent 32-bit, 50 MHz PCI buses with an aggregate bandwidth of 1.6 Gbps when used with NPE-400 or above	Same as Cisco 7204VXR
	Online Insertion and Removal (OIR)	Yes	Same as Cisco 7204VXR
	Field-Replaceable Components	Processor, memory, power supply, I/O card, and port adapters	Same as Cisco 7204VXR
	Additional Standard Components	AC power supply, AC power cord	Same as Cisco 7204VXR
Memory	Processor Memory	128 MB (default for NPE-225, NPE-400 and NSE-1) 256 MB (default for NPE-G1, max for NPE-225, NSE-1) 512 MB (max for NPE-400)	Same as Cisco 7204VXR
	Flash disk memory card (optional, up to 2 slots available)	48 MB, expandable to 128 MB for I/O controllers 64 MB, expandable to 256 MB for NPE-G1	Same as Cisco 7204VXR

Processors

The following processors are currently available for the Cisco 7200 Series:

- NPE-225—performance up to 225 K packets per second (pps)
- NPE-400—performance up to 400 Kpps
- NSE-1—performance up to 300 kpps with accelerated services
- NPE-G1—performance up to 1 Mpps

The NPE processors offer exceptional price/performance for most applications, including enterprise WAN aggregation, CPE, multiservice, and VPN. These processors provide the greatest flexibility when deploying new features.

The NSE-1 Network Services Engine takes advantage of PXF to offer services acceleration for “high-touch” edge services for applications such as broadband and leased-line aggregation

Input/Output Controllers

Each Cisco 7200 Series chassis has a dedicated slot for an I/O controller. The following types of I/O controllers are currently supported, including some with LAN ports for increased density without using a port adapter slot:

- C7200-I/O
- C7200-I/O-2FE/E
- C7200-I/O-GE+E.

Interfaces

The Cisco 7200 shares the same port adapters with the Cisco 7400, 7500, and 7600 FlexWAN module, protecting customer investment in interfaces, providing a clear migration path, and simplifying sparing

The Cisco 7200 Series offers scalable density with the widest range of connectivity options including:

- Ethernet 10Base-T and 10Base-FL, Fast Ethernet 100Base-T (RJ-45 and MII), and Gigabit Ethernet
- Token Ring (half and full duplex)
- Synchronous serial ISDN BRI, PRI, HSSI, T3, E3
- Multichannel T1 and E1, ISDN PRI, T3 and STM-1
- Packet Over SONET (POS)
- Dynamic Packet Transport (DPT)
- ATM (single-mode and multimode) and ATM-CES
- Digital Voice Port Adapter, Enhanced
- Mix-enabled T1/E1
- Integrated Service Adapter (ISA) and VPN Acceleration Module (VAM)

Protocols

The Cisco 7200 Series Router supports the following standard Internet protocols:

- Layer 2 and Layer 3 protocols—Address Resolution Protocol (ARP), IPCP, IP forwarding, IP host, IP Multicast, PPP-over-ATM, TCP, Telnet, Trivial File Transfer Protocol (TFTP), User Datagram Protocol (UDP), transparent bridging, virtual LAN (VLAN), MPLS, and IPv6
- Layer 3 routing protocols—EIGRP, IGRP, IS-IS, OSPF, BGP, PIM, and RIP
- Network management and security—AAA, CHAP, FTP, RADIUS, SNMP, PAP, and TACACS
- RFC 1483: Multiprotocol Encapsulation over ATM AAL 5
- RFC 1577: Classical IP and ARP over ATM AAL 5
- ARP—Determines the destination MAC address of a host using its known IP address
- BOOTP—Uses connectionless transport layer (UDP); allows the switch (BOOTP client) to get its IP address from a BOOTP server
- Internet Control Message Protocol (ICMP)—Allows hosts to send error or control messages to other hosts; is a required part of IP; for example, the ping command uses ICMP echo requests to test if a destination is alive and reachable
- IP or IP over ATM—Suite used to send IP datagram packets between nodes on the Internet
- TCP—A reliable, full-duplex, connection-oriented end-to-end transport protocol running on top of IP; for example, the Telnet protocol uses the TCP/IP protocol suite
- Packet Internet groper (ping)—Tests the accessibility of a remote site by sending it an ICMP echo request and waiting for a reply
- TFTP—Downloads network software updates and configuration files (Flashcode) to workgroup switch products
- Reverse Address Resolution Protocol (RARP)—Determines an IP address knowing only a MAC address; for example, BOOTP and RARP broadcast requests are used to get IP addresses from a BOOTP or RARPD server
- Serial Line Internet Protocol (SLIP)—A version of IP that runs over serial links, allowing IP communications over the administrative interface
- PPP—Provides host-to-network and switch-to-switch connections over synchronous and asynchronous circuits
- Simple Network Management Protocol (SNMP)—Agents that process requests for network management stations and report exception conditions when they occur; requires access to information stored in a MIB
- Telnet—A terminal emulation protocol that allows remote access to the administrative interface of a switch over the network (in-band)
- UDP—Enables an application (such as an SNMP agent) on one system to send a datagram to an application (a network management station using SNMP) on another system; uses IP to deliver datagrams; TFTP uses UDP/IP protocol suites

- Dynamic Host Connection Protocol (DHCP)—Lets a host automatically obtain their IP address, subnet mask, and default route from a pre-configured DHCP server on the network
- Hot Standby Router Protocol (HSRP)—Provides fast cut-over to a backup router in the event of a system or link failure

Table 17-84: Power Requirements for Cisco 7200 Series

Description	Cisco 7204 VXR	Cisco 7206 VXR
AC-input power	370W max. (single or dual power supply configuration)	Same as Cisco 7204 VXR
AC-input voltage rating	100–240VAC wide input with power factor correction	Same as Cisco 7204 VXR
AC-input current rating	Not to exceed 5A max. at 100 VAC and 2.5A max. at 240 VAC with the chassis fully configured	Same as Cisco 7204 VXR
AC-input frequency rating	50–60 Hz	Same as Cisco 7204 VXR
AC-input cable	18 AWG 3-wire cable, with 3-lead IEC-320 receptacle on the power supply end, and a country-dependent plug on the power source end	Same as Cisco 7204 VXR
DC-output power	280W max. (single or dual power supply configuration)	Same as Cisco 7204 VXR
DC-input power	370W max. (single or dual power supply configuration)	Same as Cisco 7204 VXR
DC-input voltage rating	–24 to –60 VDC for global DC power requirements	Same as Cisco 7204 VXR
DC-input current rating	Not to exceed 13A max. at –48 VDC (370W/–48 VDC = 7.7A typical draw) Not to exceed 8A max. at –60 VDC (370W/–60 VDC = 6.2A typical draw)	Same as Cisco 7204 VXR
DC voltages supplied and maximum steady-state current ratings	+5.2V at 360A +12.2V at 9A –12.0V at 1.5A +3.5V at 13A	Same as Cisco 7204 VXR
DC-input cable	14 AWG recommended minimum, with at least 3 conductors rated for at least 140˚F (60˚C)	Same as Cisco 7204 VXR
Frequency	50–60 Hz	Same as Cisco 7204 VXR
Airflow	~80 cfm	Same as Cisco 7204 VXR
Power dissipation	~370W max. configuration	Same as Cisco 7204 VXR
Heat dissipation	370W (1262 BTUs)	Same as Cisco 7204 VXR

Table 17-85: Physical and Environmental Specifications for Cisco 7200 Series

Description	Cisco 7204 VXR	Cisco 7206 VXR
Temperature	32 to 104˚F (0 to 40˚C), operating; –4 to 149˚F (–20 to 65˚C), storage	Same as Cisco 7204 VXR
Humidity	10 to 90% noncondensing	Same as Cisco 7204 VXR
Dimensions (H x W x D)	5.25 x 16.8 x 17 in. (13.34 x 42.67 x 43.18 cm)	5.25 x 16.8 x 17 in. (13.34 x 42.67 x 43.18 cm)
Weight	Chassis fully configured with a network processing engine, I/O controller, 4 port adapters, 2 power supplies, and a fan tray: ~ 50 lb (22.7 kg)	Chassis fully configured with a network processing engine, I/O controller, 6 port adapters, 2 power supplies, and a fan tray: ~ 50 lb (22.7 kg)
Operating temperature	32˚ to 104˚ F (0 to 40˚ C)	Same as Cisco 7204VXR
Storage temperature	–4˚ to 149˚ F (–20˚ to 65˚ C)	Same as Cisco 7204VXR
Operating humidity	10 to 90% (noncondensing)	Same as Cisco 7204VXR

Table 17-86: Regulatory Approvals for Cisco 7200 Series

Description	Cisco 7204 VXR	Cisco 7206 VXR
Agency approvals	Safety: UL 1950, CSA 22.2 No. 950, EN60950, EN41003, AUSTEL TS001, AS/NZ 3260, IEC 950 Emissions: FCC Class A, CSA Class A, EN55022 Class B, VCCI Class 2, AS/NRZ 3548 Class A Immunity: IEC-1000-4-2, IEC-1000-4-3, IEC-1000-4-4, IEC-1000-4-5, IEC-1000-4-6, IEC-1000-4-11, IEC-1000-3-2 NEBS Level 3 Compliant	Same as Cisco 7204 VXR

Software

Cisco IOS Software

To locate the minimum supported Cisco IOS Software Release for all Cisco 7200 Series products, use the Hardware/Software Compatibility Matrix at:

http://www.cisco.com/pcgi-bin/front.x/Support/HWSWmatrix/hwswmatrix.cgi

In general, the minimum support Cisco IOS Software releases for the Cisco 7204VXR and Cisco 7206VXR are 11.1(16)CA or later; 11.2(11)P or later; or 11.3(1) or later.

Ordering Information

Product Part Numbers

The base chassis product IDs are shown below. In addition, various bundles, spares, and options are available. To access part descriptions and part numbers use the online Cisco Pricing Tool at:

http://www.cisco.com/pcgi-bin/front.x/pricing

Table 17-87: Base Chassis Product IDs for the Cisco 7200 Series

Part Number	Description
Cisco 7204VXR	Cisco 7204VXR, 4-slot chassis, 1 AC supply with IP software
Cisco 7206VXR	Cisco 7206VXR, 6-slot chassis, 1 AC supply with IP software

Documentation

Chassis, Processor and I/O Controller Datasheets:

http://www.cisco.com/en/US/products/hw/routers/ps341/products_data_sheets_list.html

Port Adapter Datasheets:

http://www.cisco.com/en/US/products/hw/routers/ps341/products_relevant_interfaces_and_modules.html